

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003257**Date Inspected:** 18-Jul-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1330**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG/Tower**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

**OBG Sub Assembly Bay 1****Bay 1 Deck Panel**

QA Inspector Brannon observed ZPMC welding utilizing the dual process WPS-B-T-2342-U1 (U-rib)-3 welding procedure specification for closed rib welding for Production Panel DP145-001 and DP143-001 on closed U-rib Partial Joint Penetration (PJP) welds in Bay #1. ZPMC welding personnel performed Gantry Machine, Gas Metal Arc Welding (GMAW) for the root pass and immediately performed Gantry Machine, Submerged Arc Welding (SAW) for the cover/final, using gantry machine #1. QA Inspector Brannon observed the ZPMC QC CWI Inspector Chen Xi verifying that the welding parameters were in accordance with the above Welding Procedure Specification (WPS)

**OBG/Tower Sub Assembly Bay 2**

QA Inspector Brannon observed that the 114 Meter Mock-Up to be idle on this date. QA Inspector Brannon observed no CNC torch cutting for interior splice plate for various tower elevations. QA Inspector Brannon observed ZPMC beveling various tower plates using the horizontal milling machine. QA Inspector Brannon observed ZPMC drilling 30mm diameter bolts hole in tower skin stiffener plates.

**OBG Sub Assembly Bay 3**

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QA Inspector Brannon observed ZPMC continuing with the fabrication of various Side, Bottom and Edge Panels designated for the SAS OBG. The general fabrication of said items consist of removing of coating from weld joint areas, cutting stiffener plates, beveling various, splicing of plates, fitting, tack welding and welding.

Bay 3-OBG side/bottom/edge panels:

QA Inspector Brannon randomly observed ZPMC qualified welder's, tack welding various T stiffeners plates utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, class TL508 non-FCM and filler metal brand E7018, class THJ506Fe-1 for FCM material . Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2112 and WPS-B-P-2112-FCM respectively.

Bay 3 – Heat straightening:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various side/bottom/edge panels. Side/bottom/edge panels cause for heat straightening welding distortion. Heat Straightening is performed by flame straightening using oxygen acetylene or natural gas using a hand torch.

Bay 3-OBG side/bottom panel (Gantry 1):

QA Inspector Brannon randomly observed ZPMC qualified welders fillet welding joining T-stiffeners to side panel plate for BP193-001 weld joints 007~018. Qualified welder was observed welding in the 2F (horizontal) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1. QA Inspector Brannon observed the ZPMC QC CWI Inspector Huang Wen Pang verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2132-3.

Roll Shapes Verification testing (second batch)

Caltrans QA accompanied by ABF – Craig Knopps and ZPMC Zhu Wei Juan went to ZPMC material storage area category 2 for sampling angle shapes for testing at Bao Testing in Shanghai China. A total of 56 angles for sampling on this date, 11 were cut to 550mm in length. Each sample was marked by ABF with a white marker. ABF marked the samples as follows: ABF-00028 ~ ABF-00083. Samples cut on this date ABF-00028~ABF-00033 and ABF-00035~ABF00039. The ABF number was also placed at 3 locations on the remaining angle shape for traceability. Note: samples ABF-00028 ~ ABF-00033 metric size L102 x 102 x 9.5, ABF-00034 metric size L203 x 102 x 25.4 and ABF-00035 ~ ABF-00083 metric size L127 x 89 x 9.5. Note: Cutting samples not completed on this date.

The following digital photograph below illustrates observation of the activities being performed.

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### Summary of Conversations:

No relevant conversations to report.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco 13816942685, who represents the Office of Structural Materials for your project.

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**Inspected By:** Brannon, Sherri

Quality Assurance Inspector

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**Reviewed By:** Lanz, Joe

QA Reviewer